

**A New Species of *Montezumina* with the
Description of the Male of *M. bradleyi* Heb.
(Orthoptera: Tettigoniidae; Phaneropterinae)**

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The genus *Montezumina* was erected by Hebard who included in it *Symmetropleura modesta* * Brunner, 1878, *Turpilia oblongoculata* Brunner, 1878, *T. oridiops* Saussure and Pictet, 1897, and *T. ocularis* Saussure and Pictet, 1897. Hebard also described the species *M. sinaloae*, 1925, and *M. bradleyi*, 1927, and the subspecies *M. oblongoculata mesembrina*, 1927. *M. bradleyi* was described on the basis of two females.

While looking over specimens of the genus *Montezumina* at the Academy of Natural Sciences of Philadelphia, I discovered a distinct species represented by a series of fifteen males and eight females, all in good condition and all but four on loan from the Los Angeles County Museum. Moreover, I found a series of six *Montezumina bradleyi* males, also in good condition.

This paper presents descriptions of the male of *Montezumina bradleyi* and the new species, which I have named *granti*. I have placed *granti* in the genus *Montezumina* because the eyes are elongate, oval; the cephalic and median tibiae are subsulcate dorsad; the dorsum of the head behind the eyes is high, and the vertex tapers sharply down to the fastigium to meet but not extend beyond the frons; and the subgenital plate of the male lacks styles. A brief comparative study is included in the description.

***Montezumina bradleyi* Hebard 1927**

MALE. As a complement to Hebard's description of the female of *Montezumina bradleyi*, the following description presents additional characters unique to the species. It is

* Hebard placed this species in *Montezumina* in 1934 (p. 205, See Literature Cited).

presented in a manner to allow a more meaningful comparison with *M. granti*.

Diagnosis.—This species differs from others in that its tenth tergite is truncate, slightly produced, and medially depressed. Also, the lateral lobe of the pronotum is deeper than long. The eyes are large for the genus. It is the most colorfully marked member of the genus, with characteristic E-shaped markings on the inner lateral surfaces of the cephalic femora.

Description.—*Head.* Eyes large for genus, ovoid elliptical. Dorsum of head high, vertex tapering down sharply to fastigium which approximates tip of frons, but does not touch it, as in other species.

Pronotum. Median length/width of pronotal disc 1.45 (mean of males). Surface of disc and cephalic half of lateral lobes smooth, caudal half of lobes weakly punctate. Lateral lobes deeper than long (Fig. 1).

Wings. Anterior wing about 5.13 times longer than wide (mean of males). Surface marked with scattered brown dots; apical half of anal margin of both pairs of wings in folded position edged with a jagged brown line.

Legs. Variable number of spines on all femora. Posterior femora about 7.04 times longer than wide (mean of males).

External genitalia. Male. Tenth abdominal tergite produced slightly with deep median depression; as seen from above, edge of tergite forming a very wide V. Supra-anal plate ovoid, reflexed inward, produced from inner surface of tenth tergite. Cerci simple, cylindrical, the proximal half curved gradually upward, then downward to apical end, where it recurves sharply upward; apical end laterally slightly flattened, ending in a conspicuous tooth. Subgenital plate as long as cerci, broad at base and tapering slightly distally; a medial ridge running the length of the plate; tip of plate wide, bearing two conspicuous pseudostyles (Figs. 4, 6).

Concealed genitalia. Not observed.

Coloration. Eyes dark brown, uniform to mottled. General body color a pastel yellow-green. Pronotal disc with reddish to brown spots at each corner. Abdomen yellow with little

evidence of green pigmentation. Each cephalic femur bearing a distinctive brown E-shaped marking on inner lateral surface and a simple horizontal brown bar on outer surface. Apices of other femora tipped with brown; distal tips of tibiae similarly highlighted with brown as are the bases of many of the tibial and femoral spines. Dorsal surface of cerci of male medium to dark brown.

Variation. Very little variation. One specimen lacks the conspicuous pseudostyles on the subgenital plate.

Discussion.—This species agrees with other *Montezumina* species in head and eye shape, but differs in that the tenth tergite is not elongate as in the type species *oblongoculata*. The cerci and subgenital plate most closely resemble those of *oblongoculata mesembrina*.

Specimens examined.—6♂. Pozo Azul de Perris, Costa Rica, Taken at night in house, VIII-20-1927 (Lankester & Rehn) 2♂ [Academy of Natural Sciences of Philadelphia]; Trinidad Rio, Panama, III-19-20-1912 (A. Busck) 3♂ [United States National Museum]; Barro Colorado Island, Canal Zone, Panama, VI-27-1930 (J. Zetek) 1♂ [Academy of Natural Sciences of Philadelphia].

Measurements. Values listed are means of ♂ (mm). Total length 30.5; length pronotal disc 3.6; width pronotal disc 2.5; length posterior femur 16.9; width posterior femur 2.4; length anterior wing 22.2; width anterior wing 4.3.

Montezumina granti, n. sp.

Diagnosis.—MALE. The tenth abdominal tergite is truncate and medially slightly concave. This species differs from all other *Montezumina* species in the shape of the subgenital plate, which is elongate, upcurved, with a deep apical emargination.

FEMALE.—The subgenital plate is thick, bilobed. The basal lobe of the ovipositor lacks a ventro-posteriorly directed process.

Types.—*Holotype* ♂, nr. Rincón, Osa Peninsula, Puntarenas Prov., COSTA RICA, II-23-1966 (H. R. Roberts) [Academy of Natural Sciences of Philadelphia]. *Allotype* ♀, same data as type [Academy of Natural Sciences of Philadelphia].

Description.—*Pronotum*. Median length/width of disc ratio 1.64 (mean, both sexes). Outline of lateral lobe as in Fig. 2. General surface smooth, with posterior portion of disc around curvature weakly punctate. Lateral lobes as wide as deep; posterior border well rounded.

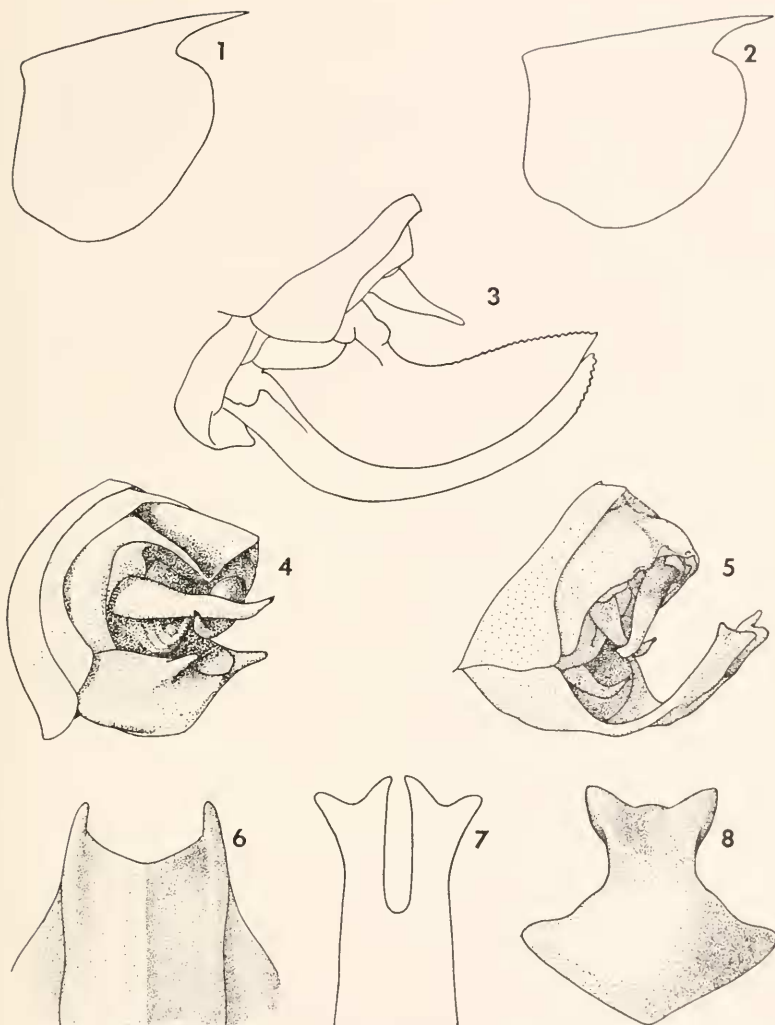
Wings. Anterior wing unmarked, about 4.98 times longer than wide (mean, both sexes).

Legs. Variable number of spines on all femora. Anterior femora with 1–4 spines along inner ventral border and none along outer ventral border, median femora with none along inner and 1–4 along outer, and posterior femora with 0–6 along inner border and 4–8 along outer. Posterior femora about 7.23 times longer than wide (mean, both sexes). Cephalic and median tibiae subsulcate as typical of genus.

External genitalia. MALE. Tenth abdominal tergite truncate, medially slightly concave. Supra-anal plate ovoid, directed slightly inward, produced from inner wall of the terminal tergite. Subgenital plate elongate, upcurved with a deep apical emargination, producing two bilobed processes (Fig. 7); lateral margins thickened, apex in section forming a right angle, the origin lying on the midline and the arms flaring out at 45° from the horizontal. Cerci simple, cylindrical, tapering and distally sharply curved mesad, apically bearing a single tooth (Fig. 5).

FEMALE.—Ovipositor short, approximating median length of pronotal disc; curved sharply upward as in *oblongoculata*; surface of valves punctate; apical half of dorsal valve finely toothed, ventral valve toothed at apex only; apex of dorsal valve produced beyond apex of ventral valve (Fig. 3). Basal lobe of ovipositor simple, oval in shape, lacking ventral posteriorly-directed lobate process found in other *Montezumina* species (achieving its greatest development in *sinaloae*). Subgenital plate thick with median depression at apex, giving impression of a thick bilobed structure; proximal portion rounded, convex (Fig. 8).

Concealed genitalia. Not observed.



Morphological aspects of *Montezumina* species. FIGS. 1-2. Male pronotum, left lateral aspect, outline; 1, *M. bradleyi*; 2, *M. granti*. FIG. 3. Female abdomen, left lateral aspect, *M. granti*. FIGS. 4-5. Male abdomen, dorso-posterior aspect; 4, *M. bradleyi*; 5, *M. granti*. FIGS. 6-7. Male subgenital plate, ventral aspect; 6, *M. bradleyi*; 7, *M. granti*. FIG. 8. Female subgenital plate, ventral aspect, *M. granti*.

Locality of specimens: FIGS. 1 and 6, Trinidad Rio, Panama; FIGS. 2, 3, 5, 7 and 8, Golfito, Costa Rica; FIG. 4, Barro Colorado Island, Canal Zone, Panama.

Color. General body color katydid green. Abdomen yellow with little green pigment (although this may represent discoloration due to death or to preservation methods, since some specimens exhibit light green abdomens). Vertex in many specimens colored pink to red. Eyes with two reddish-brown stripes originating on the dorsum of the eye and flaring ventrally, the anterior (and shorter) stripe running along midline of eye, and the posterior stripe running along the posterior to the ventral border of eye.

Paratypes.—14♂, 7♀. Golfito, Costa Rica, VII-10, 23, 27-1957, VIII-12, 21-1957 (Truxal & Menke; Arnold Menke) 14♂, 4♀ [Los Angeles County Museum]; nr. Villa Neily, Punt. Prov. (S.), Costa Rica, VIII-5-11-1963 (C. L. Hogue) 1♀ [Los Angeles County Museum]; nr. Rincón, Osa Peninsula, Puntarenas Prov., Costa Rica, II-23, 25-1966 (H. R. Roberts) 2♀ [Academy of Natural Sciences of Philadelphia].

Variation. The depth of the apical emargination on the subgenital plate varies, as does the length of the subgenital plate, many being higher than the dorsum of the tenth abdominal tergite. Color variation is minor. Variation between sexes is mainly one of size, the female being larger and more robust. The posterior femora of the female are 7.06 times longer than wide, whereas the posterior femora of the male are 7.41 times longer than wide. Similarly, the length/width index of the anterior wing of the female is 4.80, whereas in the male it is 5.15.

Discussion.—In general appearance, this species superficially resembles *Anaulacomera* more than *Montezumina*. The body is smaller and more narrow and delicate than other *Montezumina* species, and the wings are translucent as in *Anaulacomera*. However, its ovoid, elliptical eyes, the high occiput, the more sharply rounded posterior border of the lateral lobe of the pronotum, the dorsally subsulcate cephalic and median tibiae armed with only a single disto-caudal spine, and the short, toothed ovipositor of the female clearly distinguish it from species of *Anaulacomera*. The subgenital plate of the male is atypical of the genus, bearing a closer resemblance in length, curvature, and apical emargination to species of *Ceraia*. The

species is distinct from the other *Montezumina* species on the basis of the external genitalic complex. The tenth tergite is truncate, whereas in other species it is elongate, with the median portion sharply declivent between the cerci, and the supra-anal plate forming the distal triangle of the tergite. The subgenital plate is elongate, upcurved, quite unlike other species, in which the subgenital plate is small, as in *Anaulacomera* species.

Montezumina granti has no close relatives, but on the basis of the tenth tergite and shape of the cerci it most closely resembles the species *bradleyi*, which is also from Costa Rica and Panama.

The species is named in the fond memory of Dr. Harold J. Grant, Jr., in recognition of his outstanding work on the subfamily Phaneropterinae and whose assistance and kind advice have been an inspiration I will not forget.

Distribution.—This species is known only from Costa Rica.

Measurements. Values listed are means (mm). Total length ♂ 27.8, ♀ 30.1; length pronotal disc ♂ 3.8, ♀ 4.0; width pronotal disc ♂ 2.3, ♀ 2.4; length posterior femur ♂ 15.6, ♀ 17.4; width posterior femur ♂ 2.1, ♀ 2.5; length anterior wing ♂ 20.9, ♀ 22.8; width anterior wing ♂ 4.1, ♀ 4.7; length ovipositor ♀ 4.3.

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